



## Characterizing temperature and mortality in nine California counties

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### Abstract:

**BACKGROUND:** Elevated temperature has been associated with increased mortality. Few epidemiologic studies, however, have considered air pollutants as potential confounders or effect modifiers. None has focused on California, where the climate is generally mild and pollution levels tend to be high-an ideal setting to examine the independent effect of temperature from air pollution. **METHODS:** We examined the association between mean daily apparent temperature and nonaccidental mortality in 9 counties throughout California from May to September 1999-2003. Data were obtained from the National Climatic Data Center (temperature and relative humidity), the California Department of Health Services (mortality), and the California Air Resources Board (particulate matter, ozone, carbon monoxide, and nitrogen dioxide). We conducted a time-stratified case-crossover study, with a time-series analysis as a sensitivity analysis, adjusting for day of the week using both methods and adjusting for time trend in the time-series analysis. We first obtained county-specific estimates and then combined them using meta-analytic methods. **RESULTS:** A total of 248,019 deaths were included. Each 10 degrees (Fahrenheit) increase in same-day mean apparent temperature corresponded to a 2.3% increase in mortality (95% confidence interval Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 1.0%-3.6%) in the case-crossover analysis for all 9 counties combined, with nearly identical results produced from the time-series analysis. No air pollutant examined was found to be a significant confounder or effect modifier. **CONCLUSIONS:** Even without extremes in apparent temperature, we observed an association between temperature and mortality in California that was independent of air pollution.

**Source:** <http://dx.doi.org/10.1097/EDE.0b013e31815c1da7>

### Resource Description

#### Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Temperature, Other Exposure

**Air Pollution:** Interaction with Temperature, Ozone, Particulate Matter, Other Air Pollution

**Air Pollution (other):** CO;NO2;

**Temperature:** Fluctuations

**Other Exposure:** heat index

#### Geographic Feature:

# Climate Change and Human Health Literature Portal



resource focuses on specific type of geography

None or Unspecified

## Geographic Location:

resource focuses on specific location

United States

## Health Impact:

specification of health effect or disease related to climate change exposure

Morbidity/Mortality

## Resource Type:

format or standard characteristic of resource

Research Article

## Timescale:

time period studied

Time Scale Unspecified